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I, JULIE BILLINGSLEY, TEAM LEADER EXAMINATION SUPPORT AND SALES hereby certify that annexed is a true copy of the Provisional specification in connection with Application No. 2003905495 for a patent by JULIO ANTONIO GOMEZ as filed on 09 October 2003.



WITNESS my hand this
Twenty-sixth day of October 2004

A handwritten signature in cursive script, appearing to read "J. Billingsley".

JULIE BILLINGSLEY
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PROVISIONAL SPECIFICATION

STANDARD PATENT

SUPPORTIVE ARRAY

“Microfan”

The invention is described in the following statement:

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TITLE

SUPPORTIVE ARRAY "Microfan"

FIELD OF THE INVENTION

The present invention relates to devices for supporting food to be cooked or heated in a microwave oven such that steam emitted from the food may be expelled isotropically.

BACKGROUND TO THE INVENTION

Devices such as this invention are particularly useful in the preparation of pre-frozen pizzas and other pastries, which normally cannot be successfully cooked in a microwave oven: indeed popular product lines from supermarkets often bear warnings to that effect, and attempting to do so without the use of a device of the nature herein described results in an unpalatably limp comestible.

Prior designs to permit isotropic steam release from foods in a microwave oven have mostly been of the skeletal type and therefore cannot bear indicia, have used thicker materials, and often have not been compactable.

SUMMARY OF THE INVENTION

This invention is a supportive array which fits in a microwave oven for the support of pizzas, parathas, pastries, and other comestibles during the microwave cooking process, the use of which enhances the hot surface drying by permitting the free escape of moisture from both the upper and the lower surface of the food, also preventing expelled moisture from forming condensate accumulation on a standard glass microwave oven.

The device consists of a construction being a series of concertina-like flutes of thin paper, plastic film or the like, and may be fold-away so as to permit packing into a compact form, or may be pre-shaped and not compactable. It may be also self-erecting such as the mechanism of a pop-up book. Any type may form a circular, square, octagonal, or other polygonal supportive form.

The design combines the desirable but apparently incompatible features of maximum surface area, so providing the largest possible area to bear advertising or other indicia, minimum food contact area, minimum material thickness, stability, high load-bearing strength, and simplicity of implementation.

The pre-shaped, compactable forms of the invention utilises a novel vertical triangular fold derived from the membrane fold mathematics of Origami at the end of each flute, which provides stability to the form as well as improving the load-bearing quality by edge-loading of the thin membrane via the vertical fold. The device may be produced with or without the rigidifying peripheral folds.

The large surface area is useful for offsetting the price of the device by bearing advertising indicia, and through minimum food contact, allows isotropic emission of steam from the food, which results in the food being crispy after cooking.

The latter feature allows the satisfactory cooking of frozen pizzas in particular, in contradiction to the recommended cooking instructions of that food, but may also be used on many other types of pastry.

Cooking by microwave instead of a conventional oven also reduces the electricity required by ~85%, thus greatly saving energy.

EMBODIMENTS

The device may bear various embodiments, viz.:

1. A device with features as described above produced in thin sheet material which in the compact concertina-like condition has parallel folded flutes which may or not bear triangular rigidifying folds at one end of the bundle, the other end of the flutes may be together adhered or otherwise constrained together, or non-constrained. In deployment, the edges bearing the rigidifying fold may be radially spread, so as to be opened like a fan, and on completion of a 360° turn, the meeting flutes are secured such that the spread flutes will not re-part. The extended device may bear any geometric plan in the superior aspect.
2. A device with features as described above produced in thin sheet material which in the compact, concertina-like condition has folded flutes, bearing or not triangular rigidifying folds at both ends of the bundle, the angularly corrugated parallel fluting being deployed by laterally stretching the fluting until the triangular end-folds spread and thus hold the device in the extended position. The extended device may bear any geometric plan in the superior aspect.
3. A self-deploying book-fold device with features as described above such that on opening the covers, the array will self-deploy into a raised set of fluting, with or without the triangular support peripheral folds. The opened device may bear any geometric plan in the superior aspect.
4. A device with features as described above produced in thin rigid material not compactable, the fluting being permanently set into the material, which may be a plastic, *papier-mâché*, or any other similar material which is permanently formable. The device may bear any geometric plan in the superior aspect.

DRAWINGS

- Fig.1 shows a radially deployable fluted device bearing rigidifying folds shown in the operating conditions.
- Fig.2 shows a parallel-fluted laterally deployable device with rigidifying triangular folds at both ends of the flutes.
- Fig.3 shows a self-deploying book-fold device with and without rigidifying triangular folds at the peripheral edges of the flutes.
- Fig.4 shows three views of a rigid form of the device.

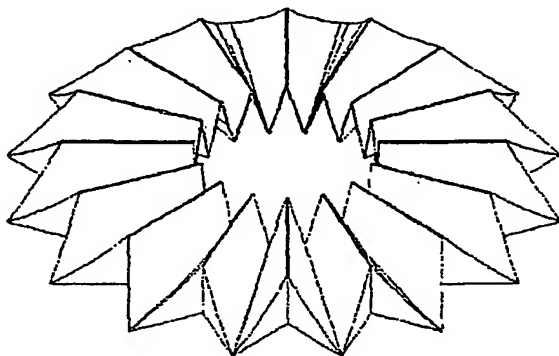


Fig 1

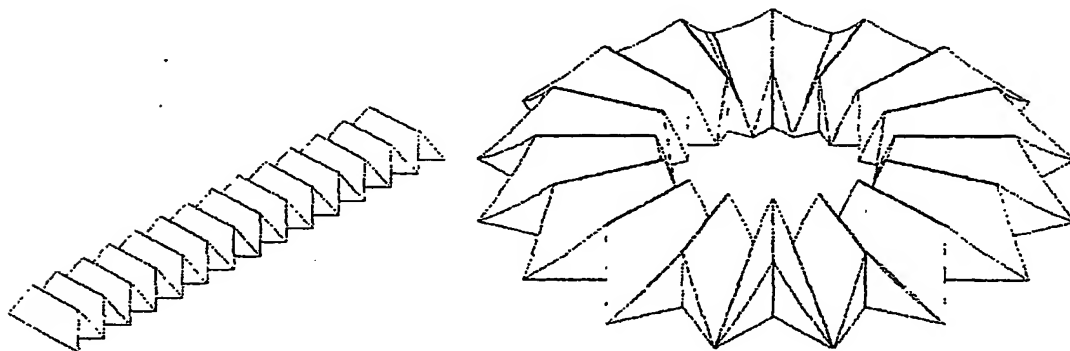


Fig 2

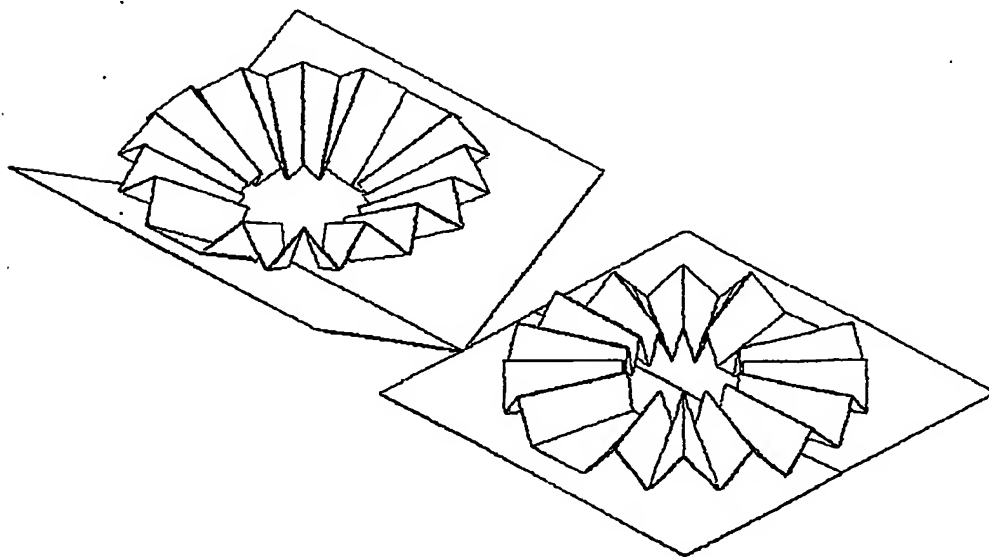


Fig 3

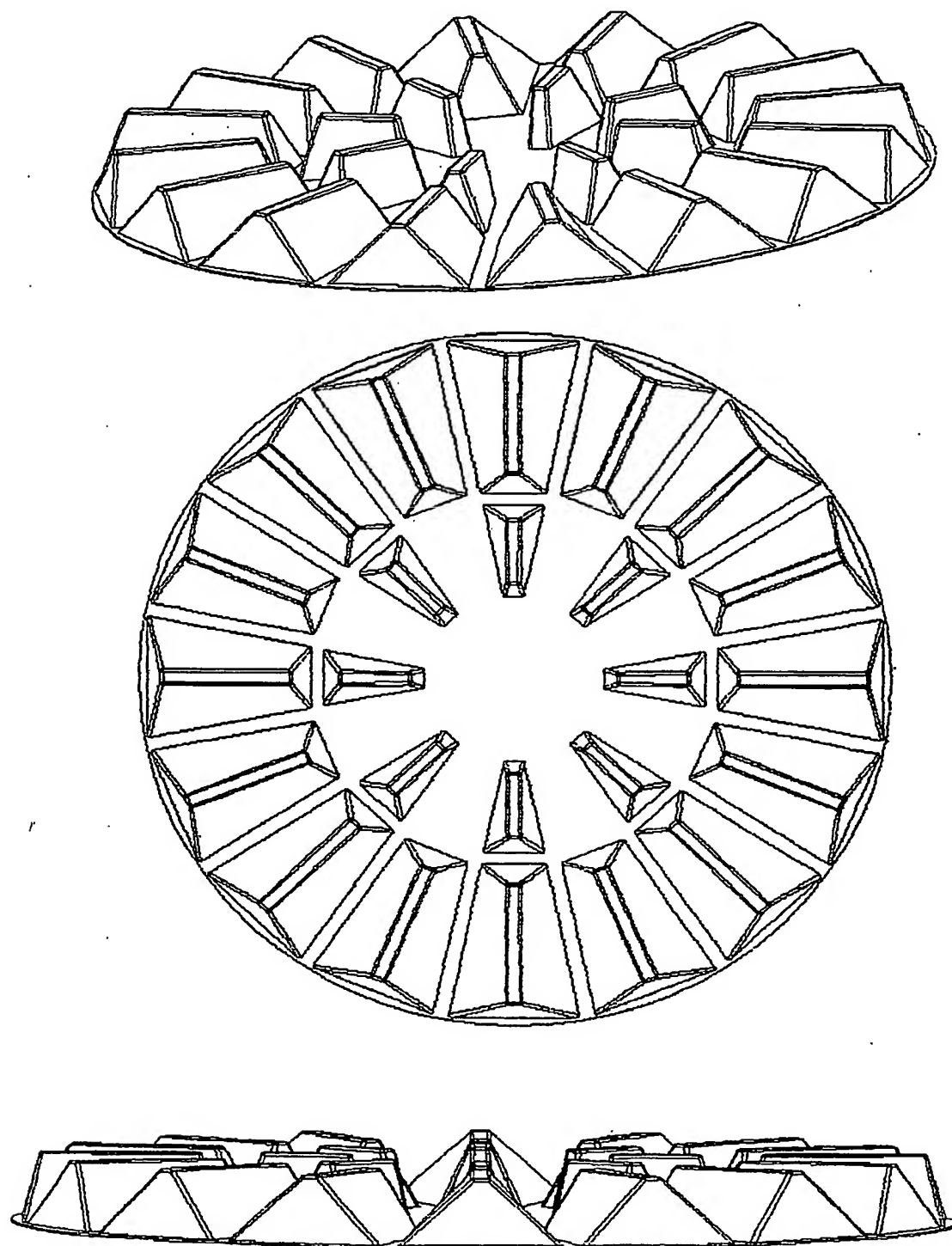


Fig 4

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